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OF USEFUL AND ENTERTAINING

KNOWLEDGE.

"GET WISDOM: AND WITH ALL THY GETTING, GET UNDERSTANDING."

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BIOGRAPHY.

BIOGRAPHICAL SKETCH OF THE LATE BISHOP HOBART.

THE Right Rev. John Henry Hobart, D. D., was born in the city of Philadelphia, September 14, 1775. He was educated in that city, and subsequently in Princeton College, where he established a high reputation for great strength of natural talent, and the most faithful and successful prosecution of its course of literary and scientific studies. Having left college, he prosecuted the study of theology under the direction of the Right Rev. Bishop White, of Philadelphia; and it was, as the present writer has reason to believe, for his guidance and direction, that that learned prelate drew up the course of studies which, with but few alterations, was that adopted by the House of Bishops, in 1804, and established by the cannons as proper to be pursued by candidates for orders. Having completed his preparatory studies in divinity, Mr. Hobart was ordained Deacon, by Bishop White, in Philadelphia, in the year 1799. He officiated, for a time, in the parishes of Trinity Church, Oxford, and All Saints, Lower Dublin, in Pennsylvania. A filial fondness, however, for his alma-mater, and strong attachment to fellow-students whom he had left in Princeton, soon induced him to accept the charge of Christ Church, New-Brunswick, N. J., the duties of which he was to connect with a residence at Princeton .The following year, 1800, he re-

moved to St. George's Church, Hempstead, Long Island; and was, about that time, married to Mary Goodwin, daughter of the Rev. Thomas Bradbury Chandler, D. D., Rector of St. John's Church, Elizabethtown, N. J., and one of the most learned and eminent clergymen of the Protestant Episcopal Church in this country.

Toward the close of the same year, 1800, Mr. Hobart removed to this city, as an assistant Minister of Trinity Church, and commenced the duties of that pastoral connexion, in which, for nearly thirty years, he secured the unwavering confidence, esteem, and affection, of the largest parish in the Union. His ministerial career, indeed, furnished a rare instance of eminent popularity, won by the superior powers of the young divine, continuing unabated to the last.

Soon after his removal to New-York, he was admitted to Priest's Orders, in Trinity Church, by the Right Rev. Bishop Provoost. In 1804, appeared the first of the lay series of publications, by which he was so well known as the able and zealous defender of the principles of his church; and by which he has, also, contributed to diffuse throughout the community a spirit of humble and evangelical elevation.

In 1807, Mr. Hobart received from Union College, Schenectady, the degree of D. D.

In May, 1811, a special convention of the diocess of New-York met in this city, at the call of the Right Rev. Benjamin Moore, D. D. the Bishop of the diocess, for the purpose of electing an Assistant Bishop; the diocesan having become, by a paralytic affection, disabled for the full charge of the diocess. At that convention, Dr. Hobart was elected, with the right of succeeding Bishop Moore, as diocesan, in the case of his surviving him; and on the 29th of the same month, May, 1811, in Trinity Church, in this city, he was consecrated a Bishop, by the Right Rev. Bishop White, of Pennsylvania; the Right Rev. Bishop Provoost, residing in New-York, and the Right Rev. Bishop Jarvis, of Connecticut, being present, and assisting. On the retiring of the late Rev. Abraham Beach, D. D., Assistant Rector of Trinity Church (Bishop Moore being Rector) in the fall of 1812, Bishop Hobart succeeded him; and on the death of Bishop Moore, February, 1816, he became the Bishop of the diocess, and the Rector of Trinity Church.

In the fall of 1823, the state of the Bishop's health rendering necessary a voyage to Europe, he embarked for Liverpool. The interest excited by this event, throughout the community, will never be forgotten. Christians of all denominations, and citizens of all classes, appeared to unite in the most sincere regret of the cause of his departure, and the most heartfelt desires for the success of the enterprise in the re-establishment of his health. He continued

abroad for two years, travelling much, both in Great Britain and on the Continent, and directing his clear and discriminating mind to an observation of men and things, which has ever since added largely to the enjoyment and instruction always afforded by social intercourse with him. On his return, in the fall of 1825, he preached the discourse which has been extensively known, both at home and abroad, as a brilliant exhibition of the clear and discriminating powers of his mind, of the eloquence which he had ever at his command, and of his enlightened love of country.

On his return, in renewed health, the Bishop again entered on that course of active duty which terminated but with the fatal disorder, which, in ten days, removed him from the living.

On Thursday, Sept. 2, while in the course of an episcopal visitation, at the residence of the Rev. John C. Rudd, D. D., in Auburn, in this State, he was seized with bilious fever. For several days, his disorder, though serious, was not alarming, and there were frequent intervals of comparative ease, justifying strong hopes of recovery. About the 8th, however, it assumed a most threatening aspect. All hope gradually vanished; and on the morning of Sunday, the 12th, he breathed his last. His body was brought to the city; and on Thursday, the 16th, with one of the largest and most solemn funeral processions ever witnessed, was borne to Trinity Church; beneath the Chancel of which, after the last rites had been performed, it was interred.

Of the perhaps unparalleled testimonies which have been borne to his worth as a man, his usefulness as a citizen, his eminent piety as a Christian, and his splendid career of usefulness as a Christian minister, and a Christian bishop, the public are well aware. They were richly merited. Amiable dispositions, honourable principles, frankness and courteousness of deportment, sound learning, clearness and quickness of intellect, untiring activity of both body and mind, ardent and disinterested devotion to study, uncompromising adherence to principle, and the all-controlling influence of religious motives and views, have rarely, if ever, been seen so happily blended. A great man has indeed fallen in our community; the consideration that he was as good as he was great, brings in the blessed influence of Christian hope, and bids us rather think of his advancement to moral and intellectual perfection, and to the bright rewards of the "good and faithful servant."

AGRICULTURE.

(From the United States Literary Advertiser.)

FARMING.

Those who have strictly investigated the subject, consider large farms comparatively less productive than small ones; while they at the same time impose upon their owners a degree of labour much greater in proportion than would seem to be required by the mere difference of size. The cause, it is thought, lies altogether in the difference of management. A farmer in moderate circumstances, with fifty or sixty acres of land, for instance, will bring every inch of it into a high state of cultivation—the labour employed in preparing his grounds will be more than doubly compensated in his subsequent exemption from toil; while the owner of a wide-spread territory of three or four hundred acres, which he has but sparingly supplied with nourishment, must work more sedulously upon every acre during the progress of vegetation; and, after all, reap but a meagre and inadequate harvest. As a single acre of land highly cultivated, can be made to yield a crop equal to three or four acres scantily prepared, it must be obvious, that the extra labour in dressing the former is abundantly more than saved by the diminished labour in attending it. A striking exemplification of this fact may be viewed by any of our farmers, who will take the trouble to visit the grounds attached to the House of Industry at South Boston—there, they may have the theory and the illustration directly before their eyes. Those grounds, it is said, have produced this season, from three to four tons of hay per acre—which is three or four times the quantity of ordinary crops. So exuberant was the grass, that there actually was not room, upon the surface where it grew, sufficient for the purpose of making the hay. And this was entirely owing, as we are told, to the previous pains taken to enrich the soil by plentiful additions of suitable compost.

Were the same policy pursued by the owners of large farms, there would be little need of emigration from the New England to

the western states; for the very tracts which now, under a careless system of culture, barely afford sustenance for a single family, might be made to support three or four—and that too, with much less "toil and trouble," in proportion to the quantity cultivated. Many of our farmers grasp at the management of too spacious a territory; the consequence is, they impose upon themselves a state of slavery: they accumulate nothing, except now and then an additional patch of waste land, which serves only to increase their burthens without augmenting their income. Were they, on the contrary, to confine their exertions to smaller spots, while their crops could be rendered equally if not more abundant, they would themselves enjoy life better—become more independent, and with their usual share of sagacity and frugality, more wealthy: they would acquire time to institute experiments, and to examine improvements; they would attain what they now scarcely ever possess—*leisure*—whereby we mean not the privilege of being lazy—but that sort of leisure which poor Richard describes as "time for doing something useful"—time for study, for reflection, for familiar converse, for looking after the education of their young—in short, for realizing the blessing after which they are constantly toiling. We are no practical farmer—but, according to the proverb, "a wink from a blind horse" is sometimes serviceable.

From Pittsburg to New-Orleans, the son ploughs as his father did before him, and the mass of farmers are as stationary in their theory as they are in practice. Nine in ten of them believe, at this moment, that book-farming is the mere useless, visionary dreaming of men that know nothing about practical agriculture.

We would tell them that England is the garden of Europe, simply because almost every acre of the ground is cultivated scientifically, and on principles which have been brought to the test of the most rigid and exact experiment. We would tell them that New-England, of whose soil and climate they are accustomed to think, as consigned by Providence to sterility and inclemency, is the garden of the United States, only because the industrious and calculating cannot throw away their efforts in mere brute strength—but bring mind and plan, and system and experience, to bear upon their na-

turally, hard and thankless soil. On every side the passing traveller sees verdure, and grass, and orchards, in the small and frequent enclosures of imperishable rock, and remarks fertility won from the opposition of the elements and nature. After an absence of ten years, on our return to that country, we were struck with the proud and noble triumph, conspicuous over the whole region.

The real benefactors of mankind, as St. Pierre so beautifully said, are those who cause two blades of wheat to mature where one did before. The fields ought to be the morning and evening theme of Americans that love their country. To fertilize and improve his farm, ought to be the prime temporal object of every owner of the substantial soil.—All national aggrandizement, power, and wealth, may be traced to agriculture, as its ultimate source. Commerce and manufactures are only subordinate results of this main spring. We consider agriculture every way subordinary not only to abundance, industry, comfort, and health, but to good morals, and ultimately even to religion. We shall always say and sing, 'Speed the plough.' We shall always regard the American Farmer, stripped to his emjoyment and tilling his grounds, as belonging to the first order of noble men among us. We shall always wish him bountiful harvests, good beer, and moderate use of cider, and, if he will rear it himself, of the grape, but none of the pernicious gladness of whiskey; and we shall invoke upon his labours the blessing of God, and say of him, "peace be within thy walls."—*Flint's West. Review.*

POTATOES.

The following account of an experiment in the culture of potaoes, is given in the London Magazine. A single potato was cut into 28 sets, each having one eye; and another potato was divided into 18 sets, each having two eyes. These repeetive sets were planted in a garden, on the 31st April last, and the produce gathered on the 31st October, when it was found that the produce of 26, out of the 28 with one eye, which had taken root, was 95 pounds; while the produce of the 18 sets, with two eyes, was only 55 pounds; thus proving the advantage of planting with single-eyed potato sets.

From the Columbia Gazette.

WINE,—FOX GRAPE, &c.

Mr. Editor,—As there is now growing over the whole face of our country thousands of bushels of wild grapes, and as the Fox Grape is now nearly of the size it will come to when at maturity, I have written the accompanying receipt, which if you publish in your paper, it may prove of some advantage to the public in general.

I have, according to this receipt, made wines of various qualities, some of which accompany this. Some of these wines, at 3 or 4 years old, equal the best Madeira in the opinion of good judges: and none are so bad as the low-priced rot-gut wines now imported —such as your Malaga, Clarets, &c. and are as salubrious as the best of those imported. I have made wine of a fox grape that was pronounced by Mr. Jefferson and others equal to the Burgundy of Chambertin, one of the best wines in France; and it was at the time compared with Burgundy he had on his table, imported by himself when he was President of the United States. And last autumn I made a pipe of wine from the common small grape, growing spontaneously on the fences, stone heaps, and shrubs—by some called the Chicken, and by others the Cyolyon grape. It is the *vitis sylvestris*, or the blue grape of Bartram. This wine was pronounced by several ladies and gentlemen recently from France, equal to, and of the flavour of, Burgundy, that cost in France five francs per bottle.

I am, sir, very respectfully, yours, &c.

JOHN ADLUM.

To make Wine of immature Grapes.

Although wine may be made in any stage of their growth, and of any kind of grape, I would advise them to be left on the vines until they have attained their full size—and as the skin and stem of the unripe grape has no bad flavour, the grapes may be used in any stage of their growth. Grapes of different sorts and sizes may be mixed together.

The following Receipt is for *ten gallons*, which may be increased to any quantity, by taking the fruit, &c. in proportion.

To a tub of the capacity of fifteen gallons, take forty pounds of immature grapes, (no matter for the variety, whether wild or cultivated) and bruise them in successive portions, by a pressure sufficient to burst the berries without breaking the seeds. Four gallons of water are then to be poured into the vessel, and the contents are to be carefully stirred and squeezed by the hand until the whole of the juice and pulp are separated from the solid matters. The materials are then to remain at rest for a period from six to twenty-four hours, when they are to be strained through a coarse bag, by as much force as can conveniently be applied to them. One gallon of fresh water may afterward be passed through the marc, for the purpose of removing any soluble matter which may have remained behind. Twenty-five pounds of good clean sugar, either brown or white, are not to be dissolved in the juice thus procured, and the total bulk of the fluid made up with water, to the amount of 10 gallons and a half.

The liquor thus obtained is the artificial must, which is equivalent to the juice of the grape. It is now to be introduced into a tub of sufficient capacity, over which a blanket or cloth of similar texture, the tub previously covered by a board, is to be thrown, the vessel being placed in a temperature of from 60 to 80° of Fahrenheit's thermometer. Here it may remain for 24 hours or two days, according to the symptoms of fermentation which it may show, and from this tub it may be drawn into the cask in which it is to ferment. The cask must be filled to the bung hole, that the scum which arises from the bottom may be thrown out. As the fermentation proceeds, and the bulk of the liquor in the cask diminishes, the superfluous portion of the must (viz. the half gallon, which was made for the express purpose) must be poured in so as to keep the liquor near the bung-hole. When the fermentation becomes a little languid, as may be known by the diminution of the hissing noise, the bung is to be driven in, and a hole bored by its side into which a wooden peg is to be fitted—this peg may be drawn once in two or three days, for a few minutes, to let the air that has been generated escape—and in about three weeks or a month it may be driven in permanently tight.

The wine thus made must be put into a cool cellar, as it is no

longer necessary to promote the fermenting process. If the operator is not inclined to bestow any further labour or expense, he may examine it in some clear cold day in January or February, or the beginning of March—when, if it is fine and bright, as it frequently will be, it may be bottled without further precautions. To ensure its fineness, however, it is the better practice to rack or decant it towards the end of December into a fresh cask, (fumigated with sulphur) so as to clear it of its lees. At this time also, the operator will be able to determine whether it is not too sweet for his views. In this case, instead of racking it, &c. he will stir up the lees so as to renew the fermenting process, taking care also to increase the temperature at the same time.—At whatever time the wine is racked it ought to be fined. Sometimes it may be necessary to rack it a second time into a fresh cask, (if the wine is not perfectly bright) and repeat the operation of fining. All these removals should be made in clear, dry, and if possible, in cold weather. In any case it must be bottled during the month of March.

The wine thus produced will generally be brisk, and similar in its qualities to the wines of Champaigne, with the strength of the best Sillery.

Circumstances which cannot always be controlled, will sometimes cause it to be sweet and still, and at others to be dry.

Variations of the process described above. The skin of the grape, or the whole marc, as well as the juice, may be fermented together in the vat or tub along with the sugar in the first stage of the process. The fermentation will thus be more rapid, and the wine prove stronger and less sweet, but it will acquire more flavour.

Cream of Tartar, or, which is preferable, crude tartar, may be added to the must, in the proportion of six ounces to ten gallons, or one pound to the barrel.

If it is wished to have a very sweet as well as brisk wine, the sugar may be increased 5 pounds for every ten gallons. And in this case, if the fruit is increased to 50 pounds instead of 40, or in that proportion, and kept two years in the cask, it will assume a Madeira flavour, and will be a pleasanter and better wine than most Madeira now imported. If the wine is intended to be less sweet ; add five pounds less of sugar to the ten gallons—If it is not bottled in March, it will after the month of August or September, be a better wine than the French Madeira now imported. But in all the

above processes, if it is bottled in March, it will, seven times out of ten, sparkle like Champaigne, and all sparkling wines, to drink them in perfection, ought to be drunk within 12 or 15 months after they are made.

To ensure briskness without excessive sweetness, the fruit must be increased to 50 pounds, when the sugar is from 25 to 30 lbs. If during the fermentation of wine thus formed there should appear any danger of the sweetness vanishing altogether, it may be racked into a cask, fumigated with sulphur, and the fermentation checked by fining. Thus it will be speedily fit for use.

The best mode of fining wines that I am acquainted with, is as follows—say for a cask of from 30 34 gallons:

Draw off a gallon or more wine: then take one quart of milk immediately from the cow after milking, and before any separation takes place, to which add two table spoonfuls of salt, and one of the sweet spirits of nitre—mix it with the wine drawn, and pour it into your cask and stir it well, and leave the bung loose for about twelve hours, and then drive it tight; and, in from eight to twelve days, it will be beautifully fine and bright, and ready to bottle.

If the fermentation is complete, and all the sweet principle turned to alcohol, fining is unnecessary, as the wine will be perfectly fine and bright—and it is only to be fined when there are small particles floating in it or it is cloudy; and when all the sediment, mucilage, and other impurities are got clear of either by fermentation or fining, it will then keep for an age or ages, no matter for its strength unless it should extract some fermenting principle from the cask.

The following remarks are extracted from an address delivered before an agricultural society in Virginia by that venerable statesman and patriot JAMES MADISON. *They are fraught with the same sound sense, indicate the same comprehensiveness of mind, and thorough knowledge of the subject, which characterizes every thing from the pen of that distinguished man. Though written twelve years ago, they are not inapplicable to the present time: we commend them to the notice of all who have the management of farms.*

While all are sensible that agriculture is the basis of population and prosperity, it cannot be denied that the study and practice of its true principles have hitherto been too generally neglected in

the United States; and that this state has at least its full share of the blame. Now only, for the first time, notwithstanding several meritorious examples of earlier date, a general attention seems to be awakened to the necessity of a reform. Patriotic societies, the best agents for effecting it, are pursuing the object with the animation and intelligence which characterize the efforts of a self-governed people, whatever be the objects to which they may be directed.

There cannot be a more rational principle in the code of agriculture, than that every farm which is in good heart, should be kept so; that every one not in good heart, should be made so; and that what is right as to the farm, generally, is so as to every part of every farm. Any system, therefore, or want of system, which tends to make a rich farm poor, or does not tend to make a poor farm rich, cannot be good for the owner, whatever it may be for the tenant or superintendant, who has a transient interest only in it. The profit, where there is any, will not balance the loss of intrinsic value sustained by the land.

The neglect of manures is an error which claims particular notice. It may be traced to the same cause with excessive cropping.—In the early stages of our agriculture, it was more convenient, and more profitable, to bring new land into cultivation, than to improve exhausted land. The failure of new land has long called for the improvement of old land; but habit has kept us deaf to the call.

Nothing is more certain, than that continual cropping without manure, deprives the soil of its fertility. It is equally certain, that fertility may be preserved or restored, by giving to the earth animal or vegetable manure, equivalent to the matter taken from it; and that a perpetual fertility is not, in itself, incompatible with an uninterrupted succession of the crops. The Chinese, it is said, smile at the idea, that land needs rest, as if like animals it had a sense of fatigue. Their soil does not need rest, because an industrious use is made of every fertilizing particle that can contribute towards replacing what has been drawn from it. And this is the more practicable with them, as almost the whole of what is grown on their farms, is consumed within them. That a restoration to the earth of all that annually grows on it, prevents its impoverishment, is sufficiently seen in our forests, where the annual exuviæ of the trees and plants, replace the fertility of which they deprive

the earth. Where frequent fires destroy the leaves, and whatever else is annually dropped on the earth, it is well known that the land becomes poorer: this destruction of the natural crop, having the same impoverishing effect, as a removal of a cultivated crop.—A still stronger proof, that an annual restoration to the earth, of all its annual product, will perpetuate its productiveness, is seen where our fields are left uncultivated and unpastured. In this case, the soil receiving from the decay of the spontaneous weeds and grasses, more fertility than they extract from it, is, for a time at least, improved, not impoverished. Its improvement may be explained, by the fertilizing matter which the weeds and grasses derive from water and the atmosphere, which forms a nett gain to the earth. At what point, or from what cause, the formation and accumulation of vegetable mould from this gain ceases, is not, perhaps, very easy to be explained. That it does cease, is proved by the stationary condition of the surface of the earth in old forests; and that the amount of the accumulation varies with the nature of the subjacent earth, is equally certain. It seems to depend, also, on the species of trees and plants, which happen to contribute the materials for the vegetable mould.

But the most eligible mode of preserving the richness, and of enriching the poverty of a farm, is certainly that of applying to the soil a sufficiency of animal and vegetable matter in a putrefied state, or a state ready for putrefaction; in order to procure which, too much care cannot be observed in saving every material furnished by the farm. This resource was among the earliest discoveries of men living by agriculture; and a proper use of it has been made a test of good husbandry, in all countries, ancient and modern, where its principles and profits have been studied.

The article which constitutes our principal manure, is wheat straw. It is of much importance, therefore, to decide aright on the mode of using it. There are three modes:—1. Carrying it from the farm-yard, after having passed through, or being trodden and enriched by cattle. In that mode the greater part of it must be used, if used at all; the straw going through that process, being a necessary part of the food allotted to the cattle. To derive the full advantage from it, it ought to be hauled out before the substance has been wasted by rain, by the sun, and by the wind; and to be buried in the earth as soon after as possible.—2. Spreading

the straw on the surface of the ground. Many respectable farmers are attached to this mode, as protecting the soil from the sun; and by keeping it moist, favouring the vegetation underneath, whether spontaneous or artificial; whilst the straw itself is gradually decomposed into a manure. The objection to this mode, is the loss by evaporation, before this last effect is obtained. 3. Turning the straw at once under the surface of the earth. This would seem to be the best mode of managing manures generally; least of their substance being then lost. When the grain is trodden out from the straw, it is left in a state easily admitting this operation. Some difficulty may attend it, when the grain is thrashed from the straw, by the flail, or by the machines now in use, neither of which break the straw sufficiently to pieces.

An eminent citizen and celebrated agriculturist* of this state, has among other instructive lessons, called the public attention to the value of the corn stalk as a manure. I am persuaded that he has not overrated it. And it is a subject of agreeable reflection, that an article which is so extensively cultivated as that of Indian corn, and which is so particularly exhausting, should be the one so capable of repairing the injury it does. The corn stalk as a fodder is of great value. Not only the leaves, but the husk enclosing the ear, and the cob enclosed by it, are all more or less valuable food, when duly preserved and dealt out to cattle. There is no better fodder than the leaves or blades for horses and oxen; nor any so much approved for sheep; the husk or shuck is a highly nourishing food for neat cattle. And the pickings of the stalk, even at a late season, and after much exposure to the weather, support them better than any of the straws. From the saccharine matter in the stalk, which is long retained about the joints, it cannot be doubted that if cut early, or before exposure to the weather, into parts small enough for mastication, it would well repay, as a food for cattle, the labour required for it.

The great value of the corn stalk, in all its parts, as a fodder, was brought into full proof, by the use made of it, during the late general failure of crops. It is to be hoped that the lesson will not be suffered to pass into oblivion.

But it is as a resource for re-fertilizing the soil, that the corn stalk finds the proper place here; and as such it merits particular

* Col. John Taylor.

notice, whether it be passed through animals, or be prepared by fermentation in the farm-yard; or be merely spread on the surface of the earth, the mode in which its effects must be least considerable. The same qualities which render every part of it nutritious to animals, render it nutritious to the earth.

The sum of these remarks on cultivating poor land, and neglecting the means of keeping or making land rich, is, that if every thing grown on a soil is carried from it, it must become unproductive; that if every thing grown on it, be directly or indirectly restored to it, it would not cease to be productive: and, consequently, that according to the degree in which the one or the other practice takes place, a farm must be impoverished, or be permanently productive and profitable. Every acre made by an improved management to produce as much as two acres, is in effect the addition of a new acre; with the great advantage of contracting the space to be cultivated, and of shortening the distance of transportation between the fields and the barn or the farm-yard. One of the Roman writers* on husbandry, enforces the obligation to improved management, by a story of one Paridius, who had two daughters and a vineyard; when the elder was married, he gave her a third part of the vineyard; notwithstanding which, he obtained from two-thirds the same crop as from the whole: when his other daughter was married, he portioned her with the half of what remained, and still the produce of his vineyard was undiminished. The story, short as it is, contains a volume of instruction.

From the American Farmer.

ROTATION OF CROPS.

Chester County, Penn. July 20, 1830.

J. S. Skinner, Esq.

In compliance with the request of "*a subscriber,*" in the Farmer of the 16th inst. I propose to offer a few additional particulars, relative to our mode of farming, in this district of country: though my former communication, in fact, exhibits the principal features of

* Columella.

the system which is most approved here. The subordinate operations,—such as cultivating more or less of *roots*, feeding *hogs*, or *sheep*, making butter, &c.—may be varied according to the demands of the times, or to suit the local circumstances of the farmer, but the main object, as we apprehend, is to improve the condition of the land by a judicious *rotation of crops*, and to get the pasture fields and mowing grounds covered with a mellow, productive sod, full of valuable grass roots, and clear of mullens, briers, daisies, thistles, and all sorts of weeds and rubbish. To this I add my own conviction, that the farm should be divided into such a number of fields, as to allow them all, in succession, to repose four or five years in pasture. It is usual, here, to let the land rest about *three* years in grass; but I am satisfied that, where the soil is duly improved, and well filled with the roots of useful herbage, it would be advantageous to *extend* the term of pasturage. In this case, the leading object with the farmer would be the feeding of cattle,—or, if he lived near enough to market, and had a good, cold spring-house, he might find his account in a dairy. Our best farmers in this region, have generally turned their attention to feeding cattle,—as being less laborious than a dairy, at the distance we are from the city—and less exhausting to the land, than severe cropping, with grain; but still each field takes its turn, in regular succession, in the manner described in my last. *Root crops* are not much attended to except potatoes; and those chiefly for family use,—planted along the margins of the Indian corn fields. However valuable the esculent roots may be found, in European agriculture, it does not appear to me, that they will ever become prominent objects of attention in this country, where the Indian corn can be raised so successfully. At any rate, our main reliance in Chester county, next after feeding stock, is upon our crops of Indian corn, barley, and wheat. The *number* of horned cattle, hogs, and sheep, which can be fed on a farm of a given size, of course depends on the quality and condition of the land. A good farm of medium size, (say with 100, or 120 acres, of cultivated land,) will feed from 20 to 30 bullocks, averaging about 600 pounds each; and these will make a sufficiency of manure to keep the land in good order. Hogs are not usually fed in any great numbers; but every farmer keeps enough to supply his family, and also to spare some hams and bacon for the market. Sheep are frequently procured from other districts, and fattened for the butcher;

Our mountainous districts will be found much better adapted to the raising of large flocks. Our farmers are generally good economists, and keep sheep enough to clothe their families in winter; but beyond that, they rarely go, for the reason already suggested. Our surplus grain is either fed to stock, or sold to merchant millers for ready money,—as the state of the markets may render eligible. The *barley crop*, of course, goes to the brewers. The best mowing fields yield about two tons of hay to the acre; and our object is to mow only as much ground as will suffice to keep well, through the winter, as many cattle as we can feed fat, the ensuing summer; we do not consider it beneficial to mow more than that; and by no means approve of cutting grass to sell, or to be consumed *off* the farm. With respect to the quantity of *wheat* raised per acre, in this country, it is as variable as the quantity of the land. Our good farms will yield from 15 to 25 bushels of clean wheat, and I have even heard of 30, and more, bushels to the acre: but I would willingly compound for a regular crop of 20 *bushels* per acre. It is quite as much, I think, as our farms will average. The truth is, we rarely have any of those extraordinary products amongst us, that we read of elsewhere. We seldom acquire large fortunes here, and never suddenly. Indeed, we have very few marvellous occurrences, of any sort. All our improvements have been gradual, and are the result of steady operations, and well-known causes. Our farms are small,—we work them with our own hands,—and our profits are moderate: but if we do not hold great estates, we generally endeavour to be content with what we have, and find, perhaps, as much real comfort in the economical culture of our small fields, as if we had thousands of acres. "A little farm well tilled," with the usual accompaniments, you know, has long been considered a desirable acquisition: and I know of no neater dress for such a farm, than a goodly portion of clean, luxuriant sward, enclosed by substantial fences, or well-trimmed hedges. I believe, also, that such farms will be found more profitable in the long run, with less labour, than the same quantity of acres subjected to inordinate, or extravagant cropping of grain.

These desultory, and hastily written remarks, are cheerfully placed at your disposal. If you think they will in any degree meet the wishes of your correspondent, or be acceptable to any of my agricultural brethren, in other sections of our country, you will give them a place in the American Farmer.

Very respectfully, &c. W. D.

NATURAL HISTORY.

THE CONDOR.

Vultur gryphus. Lin.

The Condor, or Vulture of the Andes, holds a conspicuous rank among the tribes which, on account of their size, their extraordinary strength and ferocity, and their amazing power of flight, are placed at the head of the feathered creation. Distinguished alike by all their qualities, he is moreover remarkable for the lofty station he occupies in the most elevated eminences of our globe, in which he appears to rest in solitary majesty, like a monarch surveying his tributary possessions, or from whence he soars on "ample pinion" to the greatest distance beyond this "visible diurnal sphere." The ra-

refied air of their elevated regions, and the silence of the lofty mountains, are peculiarly suited to his nature, yet he is sometimes compelled by hunger to descend to the plains in search of his prey, but quickly returns from these lower situations when his appetite is appeased.

It is not so much for his magnitude as the great form of his beak and talons, and the breadth of his extended wing, that the Condor is distinguished. He is often represented in the fables which are told of him by travellers, as a bird of gigantic size; and his remarkable habits and the romantic situation he inhabits, have no doubt deceived persons not unworthy of credit as accurate observers. Humboldt states that he has seen them in their solitary haunts perched on the top of a rock, in the neighbourhood of perpetual snow, with their dark forms projected against the azure sky, and the dazzling whiteness of the surrounding snow, and the optical delusion, usual under such circumstances, would naturally create a belief of his colossal dimensions.

His usual size is about 3 feet in length, and the extent of his wings about 7 feet. His form, as he is represented in a sitting posture, is not unlike our Turkey, his neck and head being bare of feathers, and a wattle under his chin. His head is surmounted with a thin cartilaginous crest, or comb, of an oblong figure, extending over the forehead, and the base of the bill. The female is without this crest. The skin on the neck is wrinkled and seamed, and the ruff or collar at the bottom of the neck, consists of soft downy feathers of a snowy-white colour contrasting with the dark bluish hue of the rest of the body. The wings are as long as to reach nearly to the extremity of the tail which is short and even.

The feet are extremely robust, and the nails long and but little crooked. The whole body is a dark bluish or nearly black, excepting the middle of the wings, which is whitish or light brown. The female is said to be of superior size to the male. The young are clothed, during the first months, with a long down or bristly hairs, which covers them so thickly that they appear larger than the parent birds. According to the relation of travellers who have had the means of receiving information from the Indians who inhabit the regions where the Condor frequents, it is said to build no nest: the eggs are deposited on the naked rock entirely bare or lightly covered with straw, or the woolly leaves of the only herbaceous plant which approaches its habitation. These eggs are perfectly white, and 3 or 4 inches long. The female continues with the young brood the greater part of the year.

The history of the Condor, like that of too many of the most

remarkable animals, is involved in romance; and if we were to credit some of the accounts given of him, he would be considered as scarcely inferior in size or strength to the *Roc* of the Arabian fabulists, who was capable of raising an Elephant into the air with his powerful talons. Without resorting to fable, there is sufficient in his true character to render him an object of our wonder and admiration. It has already been observed that he is able to raise himself into the regions of the air and leave behind him our planet at an inconceivable distance. On the top of the lofty Chimborazo, and all along the great chain of the Andes, he extends to the most southern extremity of the new continent, and from his great muscular strength, his power of rising, the keenness of his scent and vision, and moreover from his courage and audacity, he seems to possess uncontrollable power over almost all the animal race. The swiftest and strongest kinds, the Deer of the Andes, the Puma, the Vicuna, and others, are incapable of eluding his attack, and the largest cattle of the plains are equally liable to become the objects of his ferocity.

When once the Condor selects one of these as his prey, it is in vain to attempt escape. He pursues him on the wing, incessantly striking him with his powerful beak, until the miserable victim sinks from exhaustion, and is compelled to submit to his fate. The tongue is the favourite morsel which is first seized, and afterward the eyes are greedily devoured. He prefers dead carcases to the living animals, but where hunger obliges him, he pursues small birds or reptiles as well as quadrupeds. The stories related of his sometimes attacking man himself, are altogether fabulous. Humboldt, who observed many of them in their native places, states that they never appeared to show any disposition to attack him; and he never heard of any instance of their having seized upon young children, as is sometimes alleged. All the Indians, whom he interrogated on that subject, concurred in the same assertion, that the Condor was never considered as dangerous to man. He repeatedly saw young infants left asleep in the open air, while the parents went to the mountains to gather snow to sell in the towns, which would never have been so exposed if any danger could have been apprehended from the Condors.

Like many others of the rapacious birds, the Condor gorges himself with his prey, and in this condition will sit perched on the summit of a rock or other elevation, silent and immoveable; and if disturbed, he may be chased on foot a considerable distance before he will take to flight. The Indians, who inhabit the districts where he is most commonly found, take advantage of this habit to

capture him alive, by employing a noose at the end of a rope. For this purpose, a horse or cow is killed and placed in some retired spot. The odour very soon attracts the notice of the Condors, who can perceive or scent their prey from almost inconceivable distances—large numbers of them assemble—they devour the carcase with their usual voracity, and glut themselves so as to be unable to take to flight—the Indians pursue them on foot, and can easily cast a noose around their neck, as they run before them. Sometimes they make a desperate effort to rise from the ground by suddenly disgorging themselves, which is the only resource left them for escape. Among the stratagems which the Indians employ to take them alive, is the use of poisonous or soporific plants, which are placed in the dead carcass on which the Condors feed, and by that means they become intoxicated and are easily taken. The Condor when first captured is frightened and timid, but soon evinces his natural ferocity of temper, and is mischievous and dangerous to be approached.

It is extremely difficult to kill one of these birds, in the ordinary way, by strangulation or even by gun-shot. The feathers resist the force of a bullet, and Humboldt even states that a ball fired against the thigh of one of them was actually flattened without making the least impression.

The Condor appears to be altogether incapable of domestication, and is rarely seen in confinement in collections. An individual was not long since exhibited in this city. Another from Chili was living a few years ago in the menagerie of the museum at Paris, and the figure we have given of him, was taken from that specimen.

FERTILITY OF THE ORANGE TREE.

We can have no proper conception of the beauty and value of the Orange-tree, which forms in our green-houses, a small slow-growing shrub, bearing a scanty supply of fruit, and that maturing with great difficulty—In the climates which are congenial to them, they are cultivated in orchards; the trees grow like our largest apple-trees, and the profusion of fruit which they produce is scarcely credible. In the Canary Islands, and particularly at St. Michaels,

the spot which supplies this country and Europe with ship loads of them in their season, a single tree has been known to produce, in one crop, as many as 29,000 oranges. Dr. Webster, in his interesting account of the geology of the Canary Islands, states that the usual product of a good tree, in common years, is from 6 to 8,000 oranges; but as instances of uncommon productiveness, he cites the fact, that 26,000 were obtained from one tree, and 29,000 from another. From this Island the usual annual export of oranges is from 50 to 60,000 boxes; and at one season of great abundance, as many as 80,000 boxes were shipped to various parts of Europe and America.

THE HICKORY.

Juglans. Lin.

There are few vegetable productions of any country which unite so many valuable properties as our walnuts and hickories. Entering as they do so largely into the composition of our woods and forests, they contribute to adorn our landscape scenery, supply us with a delicate condiment in their fruit, and from the solidity, pliability, and other good qualities of their wood, they add very essentially to our domestic comfort, and furnish a material of the highest utility in various arts and manufactures. The prodigality with which it has been applied to these various purposes, has had the effect of rendering the abundant stores of these valuable trees comparatively scarce of late years, as might be expected, and we may have ere long to lament the total extermination of most of the kinds, unless some means are resorted to of reproducing them—or a greater degree of economy should be employed in their consumption.

The walnuts and hickories, although in the system of natural history, formerly united in one family, present two very distinct groups, differing in the quality of their timber as well as that of their fruits.

The *Black Walnut** is one of our largest forest trees, extending from the New-England states to Florida. In situations most con-

* Juglans nigra.

genial to it, as along the banks of the Ohio, it attains a size truly gigantic. It has been found with its trunk of the enormous diameter of 9 feet. Standing isolated, as it sometimes does, in these situations, its branches extend horizontally, and gives the tree a most magnificent and venerable appearance. The fruit of the Black Walnut is very agreeable, and if cultivated, might be made to rival the European Walnut. Its wood renders it particularly valuable for many uses—the grain, being fine and compact, admits of a beautiful polish, so that it is highly serviceable in cabinet making for various articles of furniture. It is extensively used for the stocks of muskets, being strong and light. In ship building, if well seasoned, it is highly valuable for knees, floor timbers, and in parts of the framework. Woollen stuffs are dyed from the juice of the husk of the fruit.

The *Butter nut** grows also to a great magnitude, though it is better adapted to a cold climate than the last. Near our city, and farther north, it attains to a great size, and thrives better in poor, rocky lands, than the Black walnut. The fruit is of an oily nature, though in its fresh state agreeably tasted, but becomes rancid after a time. The timber is soft, light and of little strength, but as it does not readily split, it is much employed in the manufacture of corn shovels, dishes and bowls, and in some places, as at Windsor, Vermont, it is used for the pannels of coaches and chaises, for which purpose it is considered as particularly adapted from its lightness and its taking paint in a superior manner. It is also much employed in the country in making fences. Butter nut Bark is often used as a cathartic, and is recommended by eminent physicians for that purpose. The bark is boiled in water till the liquid is reduced by evaporation to a thick viscid substance. Its cathartic properties are said to be always sure, and to produce no pain or irritation.

Of the Hickories, the first for the excellence of its fruit is the *Pacan nut*,† of Louisiana, from whence great quantities of these delicious nuts are yearly sent to our market. The tree is highly ornamental, with a strait trunk, elevated to 60 or 80 feet. Its wood, however, is coarse grained, heavy and compact, very strong and durable, but inferior to many others. The nut, which is of the shape of an olive, is superior in the delicacy of its flavour to any of the

* J. cinerea.

† J. olivæ formis.

nut kind, and are exported in great quantities to various parts of the United States, and to the West Indies.

The next in degree to the Pacan nut in the quality of its nut is the *shell-bark Hickory*,* or as it is sometimes called in the vicinity of our city, *Kisky Thomas nut.* The excellence of its fruit has caused it to be spared in cleared lands. It derives its popular name from the peculiarity of its exterior bark, dividing into long narrow plates bending outward towards the ends, and adhering only in the middle. Its wood is strong, elastic, and tenacious, and is in high and deserved repute for its superiority over all other kinds of hickory for the purpose of fuel. It splits very easily and is used for making baskets, whip handles, and occasionally in ship-building for the keels of vessels. It soon decays, however, where exposed to dryness and moisture, and is moreover liable to the attack of worms. The fruit is small and the shell thin, and the kernel is very sweet and well flavoured. It forms also a considerable article of exportation.

The *thick-shell bark Hickory*† resembles the last, and grows like it to great extent, and the bark is also torn lengthwise in long loose fragments. It principally abounds in the bottom lands along the Ohio, and is rare in the districts east of the Alleghany. The nut is very large and the kernel sweet and tender, though the shell is very thick. It is inferior in quality to the fruit of the last species. The wood is very similar to the preceding, so that it is applied to similar purposes.

The *Pig nut Hickory*‡ is one of the largest trees in the United States, and is abundant along the Atlantic states. Its nut is very small, and the shell so hard and thick as to render it of no value. The kernel is very sweet, but from its small size and difficulty of extraction from its thick envelope, it is considered as worthless for the use of the table. The wood, however, is extremely valuable, as it is considered by manufacturers to be the hardest of the hickory tribe, and strongest, and is much in request for axe handles, and such other uses as require great strength and tenacity.

The *Mocker-nut Hickory*§ is a tree of slow growth, and does not attain a very great size, flourishing best in rich soils. The fruit, though large, is undervalued on account of the extreme thickness of its shell, and the smallness of its kernel, which is very sweet. The wood makes excellent fuel, particularly when the trees are of small or middling size. At this stage of its growth when the heart is not ripened to its usual red colour. It is called *white-heart Hickory*,

* J. alba
† J. sulcata.
‡ J. porcina.
§ J. tomentosa.

and is preferred by many to all other kinds. It appears to be particularly liable to the attacks of worms.

*The Bitter nut Hickory or Swamp Hickory,** is a lofty tree in some situations where the soil is good and watered by creeks or rivers. It bears a plentiful crop of fruit. The shell is very thin, but the kernel is intensely bitter, of no use as food to any animal; but an oil can be extracted from it which might be useful in the arts or for the lamp. Its wood is inferior to other northern species.

The *Water Bitter nut Hickory** is often confounded with the last, growing in swamps and rice-fields in the Southern states. The fruit also is extremely bitter and the wood inferior in quality. The *nutmeg Hickory,*† which is so called by Michaux, is but little known either in its range, or the properties of its timber; the nuts are very hard and of little value.

The *European Walnut,*‡ or as it is sometimes called the *Madeira nut,* is occasionally cultivated in our neighbourhood for its delicious fruit, which is very large and the shell very light and brittle. This tree is a native of Asia, there being no Walnut or Hickories indigenous to Europe, but this species has, particularly in the Southern and Western parts of that continent, been cultivated from time immemorial. It is an extremely beautiful tree, and affords a thick shade. The nuts are before all others, excepting our Pacan nut, in their flavour, and have long afforded an extensive article in commerce. The oil which is expressed from the kernel, is considered of great importance for painting, and is used in the finer kinds of copperplate printing.

The various uses to which the Hickory is adapted under all the species more or less valuable. Though they differ in the degree of their excellence, yet when compared with other trees there are certain important ends for which they are superior to all other kinds of wood. It is much used for screws, cogs of mill wheels, rake teeth, flails for thrashing grain, bows of yokes, and handspikes, for which it is particularly well adapted, and is exported in large quantities for that purpose. Hoops for casks and barrels are always made with us of the young Hickory, and it is beyond calculation what quantities are consumed for this object, and for exportation. In Europe

* J. amara. † J. aquatica.
‡ J. myristicaformis. ◊ J. regia.

the same purpose is effected with the young chestnut, which is far inferior to the hickory, since it requires to be bound at the ends, whereas our hoops are perfectly secured by a notch at each end, and adere firmly when crossed. For fuel there is no wood which approaches it, and the unlimited consumption of it for this purpose, together with the destruction of the young saplings for hoops, is rapidly causing its extermination. Very little attention as yet has been paid in cultivating it, though for the sake of preserving its timber, and the excellence of its fruit, it deserves the care of proprietors of lands. They can easily be raised from the seed, but it is necessary to plant the nuts while fresh and soon after they have fallen from the tree, they otherwise lose their power of germination. It is very difficult to increase them by transplantation, as they seldom survive their removal.

From the New-York Farmer.

ON THE CULTURE OF THE FOX-GLOVE.

The purple fox-glove, including a white variety, is *an imperfect perennial*. *Like* biennial plants, its vital energy is exhausted in producing flowers and seeds; but *unlike* biennials, lateral shoots grow simultaneously with the stalks, and often form good roots of their own, so as to survive the mature parts of the plant. Latterly, I have been in the practice of separating the suckers or *new parts* of the plant from the dead stalks and rigid roots; and as these shoots are thick and succulent, I have transplanted them with invariable success. Frequently, they flower the same season, and if not, always afford fine plants for another year.

In the autumn of 1827 I procured *a lateral shoot* of the white fox-glove; it has flowered profusely, many suckers have been removed, the *hard* roots have been extracted, and I perceive no indication of decline.

Independent of its medicinal properties, the fox-glove receives a liberal share of admiration, though it blooms in the most abundant season of fine flowers. When unprotected, in the open ground, it sometimes perishes in winter, though the white variety is natu-

ralized in the woods near Pultneyville (Wayne Co.,) whence I received a fine one in the fall of 1825. On the approach of winter, I have crowded round the plant, fallen leaves, and strewing more on the top, have confined them by a sprinkling of earth. This mode has been successful; but none has preserved such a fine green as one which I covered with *a thin inverted sod*.

D. T.

Greatfield, 4mo. 1830.

USEFUL ARTS.

OIL FOR CLOCKS AND WATCHES.

All kinds of fat and oil are found to be composed of two distinct substances, namely *elain*, and *stearine:* the former remains fluid at the ordinary temperature of the atmosphere, while the latter becomes solid. The former should be used for all kinds of delicate instruments to which oil is applied to prevent friction. To separate these two substances from each other, the oil or fat is to be exposed to the action of eight times its own weight of alcohol, nearly boiling; the liquid is then to be poured off, when, on cooling, the *stearine* will separate and crystallize. This being done, evaporate the remainder to a fifth part of the whole, and the *elain* will remain colourless, insipid, without smell, and difficult to congeal. *Elain* may also be obtained from tallow in the following manner: place your tallow between the folds of common blotting or other porous paper, and press it; the *elain* being more fluid than the *stearine*, will soak into the paper, while the latter will remain behind. The paper being then soaked will give out the *elain*, which may be collected from the surface of the water; as there will probably be some water collected with it, this should be allowed to evaporate, and the *elain* then corked up.

VARNISH FOR OIL PAINTINGS.

Take of mastich cleaned and washed, six ounces, pure turpentine, half an ounce, of gum camphor, quarter of an ounce, of pure spirits

of turpentine, eighteen ounces. Add the camphor to the spirits of turpentine, which must be in a water-bath; when dissolved, add the mastich, and toward the end of the solution, add the turpentine. When all is dissolved, it may be filtered through cotton. This varnish may be easily cleaned from the painting by washing in alcohol.

A good varnish for painted wooden boxes is made of seed lac, three ounces, of gum sandarac, one ounce, of gum elemi, half an ounce, of Venice turpentine, half an ounce, and fifteen ounces of alcohol. Pound the lac, sandarac, and elemi together, put them into the alcohol, and set them in a warm place, shaking the bottle frequently till dissolved; then add the turpentine. If the boxes are required to be white, the following varnish, which also answers for fire-screens, will do:—Take of gum sandarac, three ounces, of gum mastich, two ounces, of gum anima, one ounce, of camphor, quarter of an ounce, of spirit of wine, eighteen ounces. Pound the dry and soft gums together; the camphor must be added in pieces; after the solution is nearly completed, add a quarter of an ounce of Venice turpentine. For varnishing boxes, half an ounce of copal may be added; though the alcohol does not dissolve it all, it will make the varnish more durable.

London Mechan. Mag.

TO MAKE TIN RESEMBLE SILVER.

Melt four ounces of fine plate brass, and add to it four ounces of soft, fine, clear tin; when it is in fusion, add four ounces of bismuth, and four ounces of regulus of antimony. Let this flux together, and pour it into an ingot or bar; then beat it to a powder; grind it with rosin, a little sal ammoniac, and turpentine; form it into balls, and let them dry in the air; when you would use them, beat them fine; strew the powder thereof upon melted tin, until you perceive it white and hard enough; of this tin you may draw wire, or make buttons which will always retain its silver colour.

Ibid.

PROCESS FOR RENDERING LEATHER, CANVASS, LINEN, AND OTHER ARTICLES, WATER-PROOF.

Take 100 lbs of the best linseed oil; add one and a half pounds of acetate of lead, one and a quarter pounds of calcined amber, one and a half pounds of white lead, and one and a half pounds of very finely powdered pumice-stone. These solid substances, well ground and mixed together, must be boiled in the oil for ten hours, over a moderate fire, to prevent the oil from burning. This varnish should be of such a consistence, that, when mixed with a third part of its weight of pipe clay, it will be as thick as treacle. It is left to settle eight days, and is then passed through a lawn sieve. The next process is, to grind, in a solution of strong and clear glue, as much pipe clay as amounts in weight to the tenth part of the oil employed, and to mix it to the consistence of ointment; adding the varnish by degrees, and stirring it well with a wooden spatula or stick. This varnish must be repeatedly stirred, till it becomes perfectly fluid; and then the desired tint is given by adding a fourth part of the colour, ground in oil.

The linen must be stretched upon a wooden frame; and the composition applied upon it, with a large spatula three inches broad and nine inches long. The frame is then inverted, and the operation repeated upon the other side of the cloth: it is then left to dry for a week, and separated from the frame for use.

This cloth may be used for covers for carriages, &c.

For leather and skins, the same composition is used; but to give to the surface a smooth and brilliant appearance, the following varnish is employed. Take five pounds of the oil varnish, and an equal weight of well clarified resin; boil them together until the resin is dissolved; then add two pounds of oil of turpentine, having the colour to be given to the varnish ground with it, and passed through a lawn sieve. This varnish is to be applied with a brush. When the varnish is thoroughly dry, it must be rubbed even with a pumice stone and water, and then washed clean. Two or three coats of varnish being then applied, and each coat suffered to dry for two or three days, is sufficient to produce a brilliancy equal to that of the Japan lacker.

Bulletin de l'Industrie.

TESTS OF IRON AND STEEL.

So great is the perfection to which the manufacture of iron has been advanced in some parts of the world, that it is almost impossible to distinguish, by the unassisted eye, articles of cutlery made of *cast iron* from those of the best *cast steel*; it may be important therefore to those who deal in hardware and cutlery, that they be able to distinguish between the two by some infallible and unerring test: the following test will prevent their ever being imposed upon by *appearances*. "Dilute a quantity of nitric acid (aqua fortis) with so much water that it will only feebly act on the blade of a common table-knife; let a drop of the acid thus diluted fall on the metal to be tried; and after it has remained upon it for a few minutes, wipe it off. If the metal be steel, the acid will have left a black spot; if iron, only a spot of whitish gray colour."

With the same test a manufacturer may ascertain the quality and evenness of the steel which he is about to work into cutlery. Let him in the first place clean the piece of steel, and then wash it all over with the diluted acid; those parts which are the best will, after the acid has been washed off, appear darkest; if it be all of the same quality, the colour of the whole, will be alike, but if it be very uneven in temper and quality, the colour will be variable, some parts being darker than others.

RAIL ROADS.

In the north of Italy, the Milanese have availed themselves of the rail road principle in improving the principal streets of this beautiful city. Courses of hewn granite are laid so as to form a stone rail way. A friend writes from there that having measured these blocks of stone, he found them to be generally about 10 feet in length, 14 inches wide, and 6 inches thick, two, three, and sometimes four lines of these are laid along lengthwise of the street, so that the wheels of carriages may run upon them. It must be evident that there are many advantages in this method of paving the streets of a city, over the ordinary one:—first, there is a saving of horse power, the friction being much less; secondly, the wear and tear of the carriage is much less; thirdly, the noise and jolting of carriages is greatly

lessened; and fourthly, it is cheaper in the end, as these blocks of stone require repairing much less frequently than ordinary pavements. So deeply impressed with the utility of this plan were the Scotch engineers, that it is now being introduced into Edinburgh extensively. We should like to see the plan tried in this city; it would be a very great improvement to Broadway particularly.

NATURAL PHILOSOPHY.

CAPILLARY ATTRACTION.

If a drop of water, oil, or almost any liquid, be placed upon a board or other porous substance, it will immediately soak into it; this shows that the parts of the liquid are more attracted by the hard substance than they are by each other, otherwise they would adhere together and remain in the shape of a globule or drop, as they do when put upon a leaf of cabbage; in the latter case there is a substance on the surface of the leaf, between which and water there is no affinity or attraction, and consequently the particles of water adhere to each other and roll about upon the leaf, without wetting it in the least, and will have a similar appearance to quick silver, or mercury, upon paper. So if a glass be filled, with wine for instance, the liquid may be raised considerably above the level of the top of the glass before it will run over; but if the edge of the liquid be touched by a knife, or any substance for which it has an attraction, it will instantly be reduced to a level with the top of the glass, the surplus running off upon the knife. It is evident therefore, that there exists an attraction between most liquids, and solid substances placed in contact with each other: this attraction appears to increase when liquids are placed between, and come in contact with, two solid substances, or in very small tubes. Let a person, after emptying his tea-cup of all but a few drops of tea, place his spoon against the side of the cup so that some part of it shall come in contact with the tea at the bottom, and he will perceive the liquid will immediately approach the spoon and ascend between that and the cup: so if a small tube be placed per-

pendicularly in water, the water will rise above its level in the tube. Again, if two plates of glass be set in water so that their upper edges come in contact with each other, while their lower ones are a little separated, the liquid will rise between them, and higher in proportion to the smallness of the space between them. This kind of attraction, that is, the attraction which causes water to ascend in very small tubes, or between two plane substances, above its level, is what we denominate *Capillary* attraction, from the Latin word *capillus*, which signifies a hair; that is, the tubes are small like hairs. If the end of one of these tubes, the diameter of which is the fiftieth part of an inch, be placed so as to touch the surface of the water, the water will rise in it one inch; if the diameter be the hundredth part of an inch, it will rise to the height of two inches; if the two hundredth part of an inch, it will rise four inches, and so on in the same proportion as the bore is lessened. Why, or wherefore this is the case no one can satisfactorily account, though many have attempted it: it is one of those laws of nature, the existence of which we know, but the reason of which is beyond our ken.

If the capillary tube, or the two pieces of glass used, be oiled, the water will not rise at all, since there is no affinity, or attraction, between these two liquids; nor will mercury rise in capillary tubes, as the particles of that substance have a greater attraction for each other, than they have for any solid substance.

If two balls of wood, or other light substance, of the size of a hickory nut, be placed in a tumbler of water, near each other, they will gradually approach until they touch: this is owing to the fluid rising between, and thus drawing them together. If, on the contrary, two balls of a substance not capable of being wetted by the water, or between which and the water there is no affinity, as tallow for instance, be placed in the water in the same way, they will also approach each other, because they make the water sink between them, and are thus forced together by the surrounding fluid. When one ball of a substance having an affinity for water, and one of a contrary substance are put on the water, they will separate, for the reason that the water rising about the ball for which it has an affinity, while it sinks on the opposite side of the other ball, the one for which it has no affinity is thus placed as it were upon an inclined plane of water, and falls away from the other by its own gravity.

The importance of this law in the operations of nature, is very great, it being the cause, unquestionably, of the rise of sap in trees, plants, &c. and of the distribution of moisture into the various parts of the earth: to perceive how water will rise and distribute itself in the earth, let a person lay down a heap of perfectly dry sand on a floor; let water then be so placed us to come in contact with the bottom and outer edge of the heap; in a short time, if the supply of water is kept up, the whole heap, though it be two or three feet high, will be wetted. Another experiment will show how water rises in the fine capillary tubes of trees and plants: take several threads of cotton, twist them together, and wet them; then put one end of them in a glass of coloured fluid set upon a plate, and let the other hang over the outside of the tumbler down to the plate: the fluid will soon be seen ascending and colouring the threads, will pass over the edge of the tumbler, and follow them to the plate, upon which the whole contents of the tumbler will after awhile be emptied.

The force with which this kind of attraction acts is most astonishing, and is sometimes made use of when no other could be applied. If a cable, suspended from a beam, and made fast to a weight, so that it is stretched to its utmost tension, without raising the weight from the floor, be gradually wet with a sponge, it will contract to such a degree as to raise the weight, if its strength is sufficient, or if not, it will break. This is caused by the particles of water, insinuating themselves between the threads of the cable, being drawn in by the force of capillary attraction, forcing them apart, and thus shortening the cable.

This power is sometimes used to split rocks for millstones, which is done in the following manner:—Small holes are drilled near each other, all round the rock to be split, in the place where it is desired it should part, into which pine wedges are tightly driven; these are then wet with a sponge, and left for a short time, when the water entering the capillary tubes of the wood, swells them with such force as to burst the rock, which nothing else but powder could effect.

POLITICAL ECONOMY.

FREE TRADE.—No. II.

If the reduction of prices corresponded with the reduction of duties, the repeal of the present tariff would reduce boots and shoes thirty per cent., hats the same, cloths from thirty-five to forty, ready-made clothing fifty, and cotton goods still more: if the fabricators of these commodities now sell them as low as they can afford, the consequence of the repeal of the duties on these would be to drive them to poverty, or force them to abandon their occupations, and seek other employments. And who would be the gainer in this case? Will it be said that the farmer will be benefited? What class of men now consume the surplus produce of American farms? We answer, American mechanics, manufacturers, and other persons not engaged in agricultural pursuits. Is it the interest of the farmer to drive from employment his best customers, for the sake of buying a few articles cheaper of foreigners, who are prohibited by their government from purchasing and consuming his commodities? Every article he buys (of those which are manufactured in this country) of foreigners, takes so much from the ability of those who consume his surplus produce, to purchase of him; and consequently, if he purchase his clothing, furniture, &c. of foreign manufacturers, he drives the artisans of our own country to the necessity of turning farmers, to raise the necessaries of life which, being thrown out of employment, they have not the means to buy. Thus, those who now consume that which the farmer could not sell in a foreign market, would themselves assist to swell the surplus of unsaleable produce. But, say the advocates of free trade, "if we remove the duties on articles of foreign manufacture, Great Britain will open her ports to our produce." This is bare assertion; assertion, too, not only against all probability, but even against *possibility:* we say *possibility*, because we consider the policy of Great Britain in protecting her agricultural interests so firmly fixed, and so deeply interesting to a large portion of those to whom the making of laws is confided, that a change of it, so as freely to admit our agricultural productions, and thereby reduce the price of their own, is morally

impossible, a large majority of one branch of their legislature or parliament, at least, will never consent to adopt a policy which would reduce them to beggary.

But allowing that the price of all manufactured articles would be reduced in proportion to the reduction of duties, what would be the effect upon our country of a total repeal of all tariff laws? The advocates of the "free trade" policy say, it would be to increase commerce, and thus enrich the nation: "You now restrict commerce," say they, "to protect and encourage manufactures." Let us see. What is commerce? We answer, nothing more than an exchange of commodities between individuals of different countries, in which case it is called *foreign* commerce; or of the same country, in which case it is called *domestic* commerce. If, then, commerce be nothing more than the exchange of commodities, its prosperity must depend on the quantity and value of those articles which the individuals of the nation, or, speaking of them in the aggregate, the nation itself, has for sale, and which other nations wish to buy. We presume it will not be denied that our farmers already raise as much agricultural produce as they can find market for abroad, besides supplying the home consumption, which is probably not less than the whole amount exported.* How then, we ask, is it possible for commerce to be increased by a repeal of the tariff? We admit, that for a short time, it would be increased by the immense quantity of foreign manufactured articles that would flow into, and flood the country; but this would last only so long as our *money* held out to buy these cheap articles with—the moment that was exhausted, there would be an end to commerce. This being the case, the question again occurs, what would be the effect upon our country, of a repeal of the tariff, or in other words, of the "Free Trade" System? This question we will endeavour to answer.

* By home consumption, we mean that which is consumed by those not engaged in agricultural pursuits.

[To be continued.]

SCHOOLS, SOCIETIES, &c.

PROCEEDINGS OF THE NEW-YORK HORTICULTURAL SOCIETY.

September 28.—Mr. Dyson presented some beautiful golden *nectarines*, 3 of which were found to weigh 2 oz. 17 dwts.—2 oz. 10, and 2 oz. 11. Specimens of a fine seedling *Peach*, yellow flesh and fine flavoured, raised by Mr. J. P. Roome, in this city, were presented.

Grapes of the Isabella variety, and very sweet, were presented by Mr. John Gott, raised by him in Albany.

Mr. Saltus offered some ripe *Peaches* of the kind presented at a former meeting, and more mature than the specimens then exhibited.

October 5 and 11.—Mr. Jones presented a *Pear* raised by Mr. Livingston at Montgomery. The specimen weighed 1 lb. 14 oz. and measured one way 17 3-4 inches, and horizontally 14 inches.

Two fine specimens of *Quinces* were offered by Mr. Cooke, one of the apple variety, and the other of the Pear Quince.

Mr. Melick presents some excellent *Isabella Grapes*, raised by him in this city.

October 19.—The exhibition was enriched this evening by some highly interesting specimens of *Apples* from Montreal, presented by H. Corse, Esq. of that place. Eight different kinds were produced, all remarkable for their great size, or the delicacy and richness of their flavour. The sorts enumerated were as follow:

Bourassa, one of the best Canadian winter apples.

Autumn Colvill, a very delicate apple, but past its prime.

Indian Prime, a new seedling, large, and deep red colour, very fine.

Cheswick Codlin, a fine apple for cooking.

Orange Rinette, a new seedling, and a fine keeping apple. In form and colour this is one of the most beautiful kinds.

Fameuse, or *Pomme de neige*, a very tender juicy fruit.

Golden Reinette, or English Fall-apple.

English Reinette.

Mr. Cooke offers a branch of *Pear* tree, six inches, in length, which bore 6 pears weighing 4 lb. 11 oz.

Mr. Combault presents a quantity of his luxuriant *Isabella Grapes.*

Mr. J. J. Palmer offers two heads of *Cape Broccoli* from the garden of Mr. Givan, weighing 7 lb. 12 oz. and 5 lb. 2 oz.

FAIR OF THE AMERICAN INSTITUTE.

The Annual Fair, held under the direction and superintendence of the American Institute, commenced at the Masonic Hall in this city, on the 12th inst. and closed on the 17th. A large collection of articles of domestic manufacture were exhibited to a great concourse of admiring spectators.

In speaking of the beauty and workmanship of the articles generally, we hardly know how to do them justice without appearing to use the language of hyperbole: our feelings on entering the spacious room, filled as it was with almost an infinite variety of articles of great beauty and perfection, were those of surprise and admiration; surprise that such work could be done in the infant state of the arts in this country, and admiration at their richness, variety, and perfection.

Where all is excellent, it seems invidious to discriminate; we shall not attempt, therefore, to make any comparisons—all deserve praise—and we shall only endeavour to give some general idea of what the collection consisted of.

On entering the room, the first things that attracted our notice were several tables, some plain, and others ornamented with prints tastefully arranged and pasted on the wood, and afterward varnished so as to give them the appearance of being all one material—this was the work of ladies, and we must say we have seen them less rationally, and less profitably employed than in thus ornamenting furniture for their parlours. The table for which the first premium was awarded, was an oval centre table, the face of which was formed of almost every variety of wood used for cabinet ware cut and matched in small diamonds. It was an elegant article. The maker was John Egerton of New-Brunswick. Several other centre tables could scarcely be surpassed in polish and workmanship. Among the fancy tables, that which took the premium was ornamented by Mrs. J. Russell, of this city.

Passing from the tables, we next came to some very handsome brass shovels and tongs, manufactured by Francis Smith of this

city: the next article was that of locks; in examining these we hardly knew which most to admire, the ingenuity of their construction, or the perfection of their workmanship; with such locks to our doors he must be an expert rogue who can contrive to open them, and steal from us night or day. Should any of our readers feel anxious to make a trial of one of them, they can procure them either of Pye and Whalley, or Hall and Hawlett, the manufacturers, in this city.

The next article by which our attention was arrested were some hearth rugs, worked by young ladies—beautiful specimens of female industry—they both deserved and received general praise. Near these was an imitation Leghorn Hat, made by Miss Gardner of Richford, Mass. 17 years of age; it was very fine and beautiful; we only regret that it was the only one exhibited.

Among the articles in this part of the room, we must not omit to mention that of gentlemen's hats: within our recollection, an American hat was very seldom seen upon the head of a gentleman. An American hat! faugh! none but a clown would think of wearing one; now, no one thinks of wearing any other: the hats exhibited at the fair, we venture to say, could not be excelled in beauty, gloss, lightness, and strength, by any manufacturer in Europe; that which took the first premium was manufactured by Henry Costar, of this city.

Although we can but very briefly notice the numerous articles which attracted our attention, yet we cannot pass over in silence, the rich, glossy, and heavy handkerchiefs made of *American* raw silk, by John Morrison of this city; the superior sewing silk from Manchester, Connecticut, and also from this city; the elegant silver waiters manufactured by Thompson, and other articles of the same material by Gardner, both of this city; the edge tools by N. P. Ames, of Springfield, Mass. and Dunlap, of Lemnos, Penn.; the metal buttons manufactured by Benedict, in Waterbury, Con. and by Scovill of New-York; the Britannia ware by Mackie and Murdock, Taunton, Mass., and Crossman and Leonard, New-York; nor the beautiful paper, manufactured by Mr. Donaldson of this city, who made a very handsome display with the different kinds of bank-note, letter, and other paper, which he spread out to view.

A chimney-piece, made of iron, and painted and varnished so as to imitate Egyptian marble, by James Wilson and Co. of this city, particularly attracted our attention; it was so well done that the most practised eye could not distinguish it from real marble.

We observed a great variety of carpet cloths; some painted, some made whole, like felt, without being wove, and others wove by different manufacturing companies. This is one of those manufactures which

can hardly be said to be established yet in this country; but judging from the specimens we saw, the time is not distant when our own manufactures will wholly supply the domestic market.

It is not many years since our Piano-Fortes were all imported from Europe; but those which were exhibited at the fair, and manufactured by Dubois and Stoddard, Nunn, and Geib, might challenge competition in point beauty, fulness and sweetness of tone, with any of European manufacture.

Specimens of cotton goods were numerous, and highly creditable to our manufacturers. Several pieces of light Chintz, two blue prints, and other kinds, were observed, which were much superior to any thing of the kind we had supposed could be manufactured in this country. There were several pieces of cambrics, manufactured by P. Allen. The shirtings and sheetings were extremely fine, seseveral bleached to a snowy whiteness. The prints were from Bellevue, N. J. and Lowell, Massachusetts. We also noticed several pieces of Ginghams, some from Utica, and some made in this city, all of which were very handsome: those from Utica were of rather the finest texture.

Some specimens of fine cotton yarn were also observed from the Wallace Factory, Rockland; we noticed some of number 105. While speaking of fine yarn, we must not omit to mention the fine thread spun from flax by Mrs. Stowe of Middletown, Con. in her 69th year; it was very fine and even. Very little of that kind of yarn is spun now-a-days by our ladies.

Of the broad-cloths which were exhibited we cannot speak too highly, their beautiful gloss, silky softness, and firm texture were above all praise; we care not who wears imported cloth; that for which the premium was awarded, and which was manufactured by the Glenham Company, Fishkill, is good enough for us. We observed several very handsome pieces of sattinetts.

Several beautiful clocks graced the room. One, a very large and very splendid one, for which the first premium was awarded, was made by Mott of New-York: two others of the piano and musical kind, having the weights in the centre of cut glass pillars, with handsome lamps attached, were manufactured by Uri Emmons, who also received a premium. The cut glass manufactured by Sayre and Gates, of this city, made a very handsome appearance. Some of the articles were really splendid. The plain and moulded glass, manufactured by J. Gilliland of Brooklyn, was very good.

Among other articles we must not omit to mention the silk Plush, Ribbons, Hat-bands, &c. &c., manufactured by J. M'Rae, New-York. The Plush was a very handsome article, and we noticed several ladies' hats, that were made of the same material.

Among the *minor* articles, was the miniature cutlery made by Pooley, more ingenious and curious than useful, consisting of knives and forks highly finished and polished, about three-fourths of an inch long; razors half an inch, including handle; and pen-knives about one-fourth of an inch in length, &c. &c.

The specimens of spectacles made by J. L. Moore; mathematical instruments manufactured by Cook; carved combs by F. L. Wilsey; ladies' shoes by J. Whitney; starch by John Wright; chairs by Thos. Goodwin: sofas, bed-steads, &c. by sundry persons, were all excellent, both as to materials and workmanship.

We noticed several bars of steel manufactured by Clarke, from American iron, which is said not to be surpassed in quality by the best blistered steel; some pieces of hollow ware castings, made by Mr. Stanley, of Poultney, Ver. altogether excelled every thing of the kind we ever saw: we at first took them to be some kind of composition, being almost as smooth and light as if they had been made of sheet-iron. The hardware generally, of which there were a number of specimens, was very superior, especially the set of carpenters' tools.

There were comparatively but few specimens of the fine arts; among these, we particularly noticed the bust of Emmett, in plaster, a very correct likeness; an orphan boy in a supplicating position, a most pitiable object; the rustic dance, a painting by W. S. Mount, a piece possessing much merit; and a fancy piece, representing a forest, and water scenery: there were several pieces of water colour painting by ladies that possessed merit particularly, some pieces representing fruit, by Mrs. ——— 95 Walker St. the tints of which were extremely delicate.

We were sorry to see so few specimens of female industry and ingenuity; what there were, only induced us to regret there were not more.

We are informed that the articles generally are considered from 20 to 25 per cent. better than those of the same kind exhibited last year; this certainly speaks favourably of domestic improvement. On the whole, we consider the exhibition as a proud display of American skill in the Arts, the effect of which cannot fail to be salutary in giving confidence to our artists, and exciting in them a spirit of honourable competition and rivalry, bringing them into notice, encouraging domestic industry, and in cherishing a pride of, and attachment to, our own country.

PROCEEDINGS OF THE N. Y. LYCEUM OF NATURAL HISTORY.

Sept. 27.—Dr. Gale presents specimens of acicular crystals of *Carbonate of Magnesia*, and *Marmolite*, in serpentine, with veins of radiated crystals of *Magnesian Carbonate* of *Lime*, from Hoboken.

Dr. Graves presents several insects from Calcutta.

Mr. Hamilton offers specimens of *Pudding-stone, siliceous* conglomerate, from the Narrows, Long-Island. The vein is about two feet thick, and lies about six feet above high water, and parallel with it.

A work by Mr. R. C. Taylor, on the Geology of East Norfolk, England, with remarks on the hypothesis of Robbins, respecting the level of the German Ocean, was presented from the author.

October 4.—Dr. Dekay exhibits a specimen of a new and remarkable species of *Lœch*, from Hempstead, Long-Island.

The President exhibits from Mr. R. Peale, a beautiful specimen of transparent *Selenite*, forming the cast of a bivalve, probably a Venus, from the coast of Patagonia: also a mass of quartz rock, with rich veins, and pieces of native gold disseminated through it, from the Cherokee district, near Georgia.

A species of *Phasma*, from Dutchess county, was offered by Mr. Inman.

October 11.—Dr. Torrey presents organic remains of invertebrated animals, from Sweden, analogous to those found in carboniferous limestone. Also read a notice of a new species of *Euphorbia*, from Chester county, Penn., to which he has given the name of *E. Darlingtoniana;* and several plants received from Dr. Gates, collected near New-Orleans, among which was a new species of *Campanula*, called *C. ludoviciana.*

October 18.—Dr. Feuchtwanger presents specimens of *Oniscus acellus*, L. and of the *Acacia vera*, a plant which is much used for producing a beautiful black colour.

The President stated that he had examined the structure of several rocks on this island, having the scratches or sutures of about a foot in length, crossing the strata, and parallel with each other; differing in this respect from those heretofore observed, the sutures being deep, not continuous, and such as could not be accounted for on the supposition of their being caused by the erosion of Boulder rocks in passing over them.

MISCELLANY.

DECISION OF CHARACTER.

FROM MR. WIRT'S ORATION.

The excellence of a character consists in its fitness to the times and the service to be performed. We are disgusted with effeminacy in a man, on occasions which call for courage; and are shocked to see him play the trembling dastard, or whining sentimentalist at a moment when he should be blazing in the front of war. Thus when we see Henry the VIth in Shakspeare, retiring from the battle on which his crown and life depended, and seating himself pensively on the side of a hill, hear him exclaim,

> O God! I would I were an humble swain,
> To carve out dials quaintly, point by point,
> Thereby to see the minutes as they pass—

how painfully do we feel his unfitness for his station, and how do we long for that bold and dauntless voice of his father, which at the storming of Harfleur, cried out,

> "Once more unto the breach, dear friends, once more."

Gentlemen, you will not confound the firm and strong character which I am recommending, with a turbulent, factious, incendiary spirit. Nothing can be more contrary. The blusterer is seldom brave. True courage is always calm, and is never so captivating as when set off by courtesy. The Chevalier Bayard, one of the proudest ornaments of the age of chivalry, was the flower of courtesy, and he was not more *without fear* than *without reproach*. No, gentlemen: every good man prefers peace. It is the only condition that accords with that brotherly love which ought to prevail among men; the only state that reason and humanity can approve. But it has grown into a maxim, that the best mode of preserving peace is to be prepared for war. That strength of character which I recommend is for armour of defence, not of offence. Heaven forbid that we should ever see the war of the Roses enacted in real life, in our land. But if we ever should, it will proceed from that ig-

norance and consequent imbecility on the part of our people, which will surrender them as tools into the hands of ambition, and make them the instruments of their own destruction. An enlightened community, who understand their rights, and possess the skill and firmness to assert them, are in no danger from the intrigues of the selfish and designing. Peace is lovely. Those moral and intellectual qualities that adorn it have charms for a virtuous mind that ought not to be resisted. But their attainment is perfectly compatible with the habitual cultivation of that firmness and energy which are the best, and, indeed, the only earthly guardians of Peace itself; and, without which, our altars and firesides will be no protection against the insidious visits of unprincipled and ruffian ambition. What I recommend to you, therefore, is to endeavour to unite in your characters the quiet but determined heroism of the patriot soldier, with that love of peace which becomes the Philanthropist and the Christain.

Gentlemen, I have hitherto urged this quality upon you with reference, only, to your public or political duties. Give me leave, now, to add that decision of character is as indispensable in private as in public life; and that there can be no success, in any walk, without it. Whether you are destined for either of the learned professions, or prefer the pursuits of agriculture, commerce or manufactures, you will find that you can make no distinguished progress in either, without this bold and manly quality. The man who is prepetually hesitating which of two things he will do first, will do neither. The man who resolves, but suffers his resolution to be changed by the first counter suggestion of a friend, who fluctuates from opinion, to opinion, from plan to plan, and veers, like a weather-cock, to every point of the compass, with every breeze of caprice that blows, can never accomplish any thing great or useful. Instead of being progressive in any thing, he will be at best stationary, and, more probably, retrogade in all. It is only the man who carries into his pursuits that great quality which Lucan ascribes to Cæsar—the *nescia virtus stare loco*—who first consults wisely, then resolves firmly, and then executes his purpose with inflexible preseverance, undismayed by those petty difficulties which daunt a weaker spirit, that can advance to eminence on any line.

Success in life depends far more upon this quality, than on the possession of what is called genius. For decision of charatcter is by

no means a necessary attendant upon genius. On the contrary, there is frequently allied with it a tender and even morbid sensibility which is very apt to generate indecision, and to plunge its victim into melancholy despondency, and lethargy. You will meet with frequent instances in life in which this bold and hardy quality will give to an inferior mind the command over the superior. Nay, you will see it among boys, and even among girls at school. The leader of their amusments and of all their little enterprizes—the indvidual, to whom all the rest instinctively look to give the word of command, is frequently the inferior in point of genius to many of those who willingly obey that word. This phenomenon results entirely from superior decision of character. And you may gather from the fact this useful lesson, that if you wish, hereafter, to have influence among your neighbours, you must acquire, now, this commanding decision of character to which weaker spirits willingly bow, and find even a relief in bowing to it, and obeying it.

Gentlemen, this same quality will be one of the best guardians of your virtues. Why is it that young men are so often drawn off from their studies and tempted to dissipation which their consciences condemn? It proceeds from indecision of character. They have not the firmness to say "No" to an improper proposal. They yield to the tempter and they call it *good nature* and *good fellowship*. And they soon acquire such a habit of yielding, that temptation has only to show herself, in any form, to be followed, though she beckon them over a precipice. What is the remedy for this ruinous facility of temper? Decision of character: that bracing and vigorous decision, which, having once taken the correct course, is deaf to the siren voice of the tempter, and blind to her beauties.

Thus, both in public and in prviate life; in the learned and the unlearned professions; in scenes of business or the domestic circle, the master quality of man, is decision of character.

But you will not confound this *decision*, of which I speak either with obstinacy, or with rudeness of manners. Not with *obstinacy*, because it is the character of *obstinacy* to persist in conscious error: whereas, it is the character of *decision* to renounce an error the moment it becomes manifest, and to renounce it with equal promtitude and firmness. But it is not often that a decided character is put to this humiliating change. Because the first step has not been rashly but wisely and deliberately taken; because having been thus taken,

it is not the mere difficulty of the execution that will induce a change; for all difficulties yield to a decided character; and because it is only the developement of after circumstances which could not be taken into the first calculation, that demonstrates the error, and demands the change. Indecision is the mere creature of caprice, "a feather for every wind that blows," and is seen continually tossing, in different and oposite currents. Obstinacy, resolves ignorantly, or rashly, and (to borrow a word from Doct. Johnson) persists *doggedly* in error, against the light of its own understnding. Decision holds the middle course, and is the best earthly ally of wisdom and virtue. It is indeed, the chief Executive officer of their high decrees.

Nor will you confound decision, with rudeness of manners. There is not the slightest connexion between them. Decision is calm and steady as the polar star. She must be cool and dispassionate, for any perturbation would disturb her course. Satisfied with the correctness of that course, she is no less serene than she is intense, and can smile at suggestions that would ruffle into rudeness a character less firm. We are apt to consider rough, abrupt and arrogant manners as the natural indications of a firm and decided character. Nothing is more fallacious. These manners are frequently the mere cover for pusillanimity. Gentlemen, be assured, that there is nothing graceful, or courteous, or fascinating in address that is not perfectly compatible with the most manly firmness, and even the best evidence of its existence. Nay, you find this quality frequently, in its highest perfection in the softer sex. It is this that carries them through their arduous and, frequently, painful duties, with such undeviating steadiness, and enables them to persist in the lofty course of virtue with a constancy and dignity which put us often to the blush. Yet this quality does not make *them* rude. On the contrary, you find it in company with meekness, patience, gentleness, kindness, and frequently with all that innocent gayety of heart, and spirited gracefulness of manner which diffuse enchantment around them, wherever they go. With such bright and attractive examples before us, let it never be said that rudeness is the necessary concomitant of decision of character.

DESCARTES' WOODEN DAUGHTER.

When Descartes resided in Holland, he with great labour and industry made a female automaton, which occasioned some wicked wits to report that he had an illegitimate daughter, named Franchine. The object of Descartes was to prove demonstratively that beasts have no souls, and that they are but machines nicely composed, and moved whenever another body strikes them, and communicates to them a portion of their motions. Having put this singular machine on board a vessel, the Dutch captain, who sometimes heard it move, had the curiosity to open the box. Astonished to see a little human form uncommonly animated, yet, when touched, appearing to be nothing but wood, and being little versed in science, but very superstitious, he took the ingenious labour of the philosopher for a little devil, and terminated the experiment of Descartes, by throwing his *wooden daughter* into the sea. ANON.

EXTRAVAGANCE.

Perhaps there is scarcely any thing more destructive to a young man's character, than the reputation of extravagance. Spending more than circumstances warrant,—more than can honourably be repaid. The difficulties in which a spendthrift is continually involved are very disgusting to all steady people. They disapprove, and justly, of such conduct; they fear to connect themselves with persons who most often become burdensome to them; for he who gets a habit of exceeding his income, is seldom cured of it. All The sufferings he brings upon his relations and friends, affect him but in a slight degree. His being assisted out of his trouble will only encourage further imprudencies; till, having wearied friend after friend, in rapid succession, he becomes an outcast from society, and eventually aims to obviate the consequences of his follies by crime, or some disgraceful act bordering on it.

For their own comfort, for their friends' solace, for the sake of their eventual prosperity, every young man should cultivate a *strict manly habit* of ECONOMY. *It is impossible to raise a good character without it.* And this single article, connected with moderate talent, will recommend them to all with whom they are to have any transactions,—from whom they may wish confidence, or expect remuneration. Assistance, should they need it, will not be withheld, if it is known that their care of personal expenditures are correct. But as nothing can essentially benefit or relieve a man inattentive in this point, so those who might otherwise be inclined

to favour them will be backward to do it,—perhaps will roughly refuse all connection or concern in their ruinous affairs. The name of economy should never be esteemed a trifle. The practice of it should never be accounted mean. Generous, free, call it what you will, are terms which do not apply, unless it is literally and truly their own money with which men sport; nor then, if they sport more than their rank and circumstances prudently warrant. TAYLOR.

HUMAN ENJOYMENT.

Whatever may be the value and intensity of the pleasures of sense, (a class of our enjoyments common to man and the brutes,) during the time we enjoy them, it is altogether impossible to make them fill up any considerable portion of human life. Their province is circumscribed by nature within very narrow bounds, and every attempt to extend these, frustrates its own purpose. It does not appear, therefore, that nature intended, that the pursuit of these should be considered as a serious or important object; and, indeed, wherever this is suffered to take place, it is at the expense of all the worthier principles of our constitution. Health, and fortune, and fame, seldom fail to fall sacrifices in the progress of the evil, which, in its last stage, destroys the intellectual and moral sensibilities, and produces a languor and depression of mind, which is the completion of human misery. To this it may be added, that the pleasures of sense are confined to the moment of gratification, affording no satisfaction in the retrospect, like that which follows our intellectual exertions, and, still more, our good actions. The result of these observations is, *not* that the pleasures of sense are unworthy the regard of a wise man, but that they should be confined within those limits which are marked out by the obvious intentions of nature. That they are to be enjoyed in the greatest perfection in a life of virtue, we have the testimony of Epicurus himself; according to whose system, prudence, temperance, and the other virtues, derive all their value from their tendency to increase the sum of bodily enjoyments, and to lessen that of bodily suffering—a most erroneous and absurd doctrine, undoubtedly, when considered in connection with the theory of morals, but highly interesting in a *practical* light, as an acknowledgment from the professed votaries of pleasure, that a life of virtue (even if our views did not extend beyond the present sense) is the truest wisdom. *Dugald Stewart.*

IMPORTANCE OF KNOWLEDGE.

The high value of mental cultivation is another weighty motive for giving attendance to reading. What is it that mainly distinguishes a man from a brute? Knowledge. What makes the vast difference there is between savage and civilized nations? Knowledge. What forms the principal difference between men, as they appear in the same society? Knowledge. What raised Franklin from the humble station of a printer's boy to the first honours of his country? Knowledge. What took Sherman from his shoemaker's bench, gave him a seat in Congress, and there made his voice to be heard among the wisest and best of his compeers?—Knowledge. What raised Simpson from the weaver's loom to a place among the first of mathematicians? and Herschel, from being a poor fifer's boy in the army, to a station among the first of astronomers? Knowledge. Knowledge is the power. It is the philosopher's stone; the true alchymy that turns every thing it touches into gold. It is the sceptre that gives us our dominion over nature; the key that unlocks the storehouse of creation, and opens to us the treasures of the universe.

And suppose you that her last victory has been won—the utmost limits of her dominion reached? Nay, my friends, she has but commenced her march. Her most splendid triumphs are yet future. What new honours she has to bestow on her followers—into what new fields of conquest and of glory she will lead them, no one can tell. Her voice to all is, to rally round her standard, and to go forward to aid in her victories, and share in the honour of her achievements. None are excluded from this high privilege. Her rewards are proffered to all; and all, though in different measures, may share in her distinctions, her blessings, and hopes.

Hawes' Lectures.

"UNDER THE ROSE."

The Rose is said to be sacred to Harpocrates, the god of Silence, and was therefore sometimes placed on the walls of a room destined to receive guests, denoting thereby that what was said or done there, was not to be repeated or made public. Hence the term "sub rosa," or "under the rose," as used at the present day, signifies that what is related is in confidence, and to be kept as a secret.

GOOD ADVICE.

"Fill up your time so fully with useful employment, as to have little leisure for pursuits of a doubtful character. Endeavour to acquire such a strong sense of duty, such a taste for contemplations of a higher order, as will supersede the temptation to devote to idle, if not injurious amusements, that time which might be usefully employed.

Keep in mind the claims which your family, your friends and society, have upon your hours of retirement, and the importance of so employing those hours, that your body and mind may be refreshed. And lastly, guard against habits of idle curiosity, and be not ashamed to own that there are many things with which neither your time nor taste permits you to be acquainted, or to ask for information, for fear of exposing your ignorance."

ANON.

SKETCH OF THE INTERNAL PARTS OF THE HUMAN BODY.

The more difficult it is to acquire a proper knowledge of the internal parts of the human body, the more necessary it is to profit by the labours of skilful anatomists. With the view of facilitating the knowledge of those parts, I shall here present the reader with a short description of them. The structure of the heart, the great spring of life and motion, first merits our attention. This viscus, situated in the chest, is composed of muscular fibres, curiously interwoven—two cavities, called ventricles, separated from each other by a partition, form the interior of this organ. Contiguous to the heart, within the chest, are the lungs, which alternately open and shut, when they receive or expel the air, something after the manner of a pair of bellows; they nearly fill the whole cavity of the chest, which is lined with a very fine membrane, called the pleura. The abdomen is separated from the chest by a muscle called the diaphragm, and contains several viscera, the most important of which is the stomach, a membranous bag, which receives and digests the food. To the right of the stomach is the liver, which secretes bile from the blood, a part of which is received into a little bag attached to the liver, and called the gall-bladder; it is conveyed from thence to the intestines, and stimulates them to action. On the opposite

PAGINATION INCORRECT

side, and near the stomach, is situated the spleen, a spongy viscus, of an oval figure, the use of which is not rightly understood. Beneath the liver, on one side, and the spleen on the other, are the kidneys, which secrete from the blood an acqueous fluid, afterwards conveyed to the bladder by two excretory ducts, called ureters. In the lower parts of the abdomen are situated the intestines, a long membranous tube, divided into small and large. In the small part, the alimentary matter which has passed through the stomach, is converted into chyle, and the portion that remains unfit for nourishment is expelled by the lower and larger division of the tube. The intestines are connected with the mesentery, a membranous duplicature, which contains numerous fine vessels, called the lacteals, as they contain the chyle, or milky fluid, separated from the food: there are also numerous glands in this organ, called mesenteric glands; the lacteals enter these, and from thence proceed to the thoracic duct, or the tube which conveys the chyle into the blood. The whole internal substance of the abdomen is lined with a membrane called peritoneum, which covers all the viscera; and a fatty production of which, called omentum, lies on the superior surface of the intestines.

These are the principal viscera in the abdomen and chest; but there are several others connected with them. At the beginning of the œsophagus is the tube through which the food passes from the mouth into the stomach; and the trachea is the tube through which the air passes into the lungs; a small valve at its superior orifice, whilst it admits the passage of air, prevents that of any other fluid or substance, which, by its irritation in the lungs and air-vessels, would be the occasion of fatal consequences. There is a valve, also, placed in that orifice, of the stomach, which enters the intestines—it opens to suffer the food to pass, but prevents its returning.

Within the cranium, or skull, is situated the brain, enveloped in a very fine membrane, full of blood-vessels, and called piamater—a second membrane, much thicker and stronger, adheres to the internal surface of the cranium; and between these is a third membrane, so very delicate and transparent, as to be scarcely perceptible. Besides these parts, each of which has a determinate place,

there are others, which are dispersed over the whole body, such as bones, arteries, veins, lymphatic vessels, muscles, and nerves. The bones are united together by joints, and serve to support the body, to render it capable of motion, and to preserve and protect the softer parts. Veins and arteries circulate the life-sustaining blood throughout the body. The nerves, of which ten principal pair are enumerated, are small white cords; they proceed from the brain, are distributed to every part of the body, and are the organs of sensation and motion.

The whole body is full of pores, so small as to be imperceptible to the naked eye; and through these is continually exuding a subtle matter, called the insensible perspiration. No less wisdom is manifested in the fluid than in the solid parts of the body. The blood, chyle, lymph, bile, marrow, and the different kinds of viscous and glutinous humours secreted by various glands—their different properties, their destination, effects, and the manner in which they are separated and prepared; their circulation and renovation; all bespeak the most astonishing art and the profoundest wisdom.

Let us now recapitulate all the excellencies of our structure. The bones, by their solidity and their joints, form the foundation of this beautiful superstructure; the ligaments are tendinous cords, which unite different parts together; the muscles are fleshy substances, which perform their functions like elastic springs; the nerves, which extend to the most distant parts of the body, communicate the power of sensation, and enable the different organs to perform their functions; whilst the arteries and veins, like inexhaustible rivulets, pour the life-streams to every part. The center of circulation is the heart, from and to which all the blood proceeds, and respiration is performed by means of the lungs. The stomach and intestines are the organs where the food undergoes those changes which are necessary for the support of life. The brain is the common centre from which the nerves proceed to communicate sensation to the body, and enable the senses to receive the impressions which they convey to the soul.

Adorable Creator! how wonderfully hast thou formed us! Though the heavens, which so magnificently display thy glory, were not to exist, though I were the only being on the face of the earth, the admirable structure of my body alone would suffice to assure me of the immensity of thy power, and convince me of thy

immeasurable wisdom! Let us, then, often as we meditate upon this wonderful organization of our bodies, praise Him who has so formed us, and offer up our thanksgiving for his manifest goodness.

STURM.

EXTRACTS FROM CALLIE'S TRAVELS IN AFRICA, IN 1828.

WHAT distressed us most during this horrible day was the pillars of sand, which threatened every moment to bury us in their course. One of the largest of these pillars crossed our camp, overset all the tents, and whistling us about like straws, threw us one upon another in the utmost confusion; We knew not where we were, and could distinguish nothing at the distance of a foot. The sand wrapped us in darkness like a thick fog, and heaven and earth seemed confounded and blended into one. In this commotion of nature, the consternation was general; nothing was heard on all sides but lamentation, and most of my companions recommended themselves to heaven, crying out with all their might, "There is no God but God, and Mahomet is his prophet!" Through these shouts and prayers, and the roaring of the wind, I could distinguish at intervals, the low, plaintive moan of the camels, who were as much alarmed as their masters, and more to be pitied, as they had not tasted food for four days. Whilst this frightful tempest lasted, we remained stretched on the ground, motionless, dying of thirst, burned by the heat of the sand, and buffeted by the wind. We suffered nothing, however, from the sun, whose disk, almost concealed by the cloud of sand, appeared dim and shorn of its beams. We durst not use our water, for fear the wells should be dry, and I know not what would have become of us if, about three o'clock, the wind had not abated. As soon as it became calm, we proposed to set off, and the dokhnou was mixed and distributed. It is difficult to describe with what impatience we longed for this moment; to enhance the pleasure which I received from my portion, I thrust my head into the vessel, and sucked up the water in long draughts. When I had drunk, I had an unpleasant sensation all over me, which was quickly succeeded by fresh thirst. About half past four in the afternoon, we left the place where we had experienced this terrible hurricane, and proceeded on our way towards the north. The camels walked slowly and with effort, for they were almost exhausted; the poor beasts looked jaded and dejected. The sight of the numerous caravan, destitute of water and condemned to die of thirst, scattered over the arid land, was truly dismal. The ca-

mels gently shaking their heads, or ruminating, took their course towards the north, without requiring any direction. We advanced over a sandy soil covered with rocks, rising about five feet above its surface. Wrapped in my own reflections, I thought of the wisdom of divine Providence, which has anticipated all our wants. What a masterpiece of nature's workmanship, said I, is the camel! If it were not for this wonderful animal, who can exist for a week, without food, how could these deserts be traversed? No mortal would dare attempt it, or if any were rash enough to venture upon such an undertaking, certain death would be the reward of this temerity. There reflections were brief; but they were natural in the situation in which I was placed and I wish to give an account of my thoughts as well as of my sensations and sufferings.

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Early on the 2nd of July, the sister of Sidi-Aly came to seek me, holding in her disgusting hands, a lump of sangleh covered with hairs, for she had used the same butter to grease her head and to season this mess: though I was exceedingly hungry, I had not courage to taste it. This woman, about sixty years of age, took me aside, and said in a low voice: "Listen, Abdallahi, thou who wert brought up among the Christians, who know every thing, except the path to salvation, thou shouldest be as wise as they are; and I come to pray thee to make me a charm for one of my neices who wants a husband; if thou consentest, and the charm proves good, I will provide thee with sangleh for two days." She paused a moment to hear my answer, she then added, that she had induced the Moorish priests to write several for her, and had paid them well in *dragmes*, but that they had produced no effect; she hoped that mine would turn out better. The situation in which I now stood, did not permit me to reject this proposition: I only insisted upon the clause, that she would not put butter into the sangleh. Without loss of time, she fetched ink, and a straw to use as a pen. She first told me the name of the desired lover, and the names of his parents, and recommended to me particularly to keep the secret: as she had no paper, I furnished her with a little bit, and wrote in her presence the charm she wished for. To give it the more importance, I ordered it to be tied round the neck of the young girl, which was immediately done, and finally, to inspire a high idea of my skill in magic, I traced upon a little board another talisman, directing that the writing should be washed, and that her neice should drink of the water which had been used for this purpose. This formality having been punctually fulfilled, the girl came to ask me what time would elapse before the charm would operate. As I knew I should not be many days in the country, I told her that it would probably not be twenty days before she would be married.

Her aunt Ayesha, (this was the old woman's name,) kept her word; she brought me on the morrow, in a very dirty calabash, some sangleh made of barley-meal and without seasoning.

The daughters of Aly, having become more civil since I had shewn my talent for bestowing husbands, ceased to molest me; they came and offered me some fresh camel's milk, and this was the first time I had drank any in the dwelling of my host. Meanwhile, the good old aunt who had so strongly recommended secrecy to me, gave her friends information of the happy talent which I possessed, and I soon had to write for the neighbouring camps. All the women of the environs made friends with me, that I might give them a charm which would procure husbands for their daughters; they even went so far as to offer me money in payment, which it will be easily imagined, I was far from accepting; but I made no scruple of taking milk and sangleh for my support; profiting by this innocent stratagem, I had every day gruel or milk for breakfast.

BURNING MIRRORS.

Many have questioned the fact recorded by several historians, concerning the surprising effects of the burning mirrors of Archimedes, by means of which the Roman ships besieging Syracuse were burnt to ashes. Descartes particularly discredited the story, as fabulous; but Kircher made many experiments, with a view of establishing its credibility. He tried the effect of a number of plane mirrors; and with five mirrors of the same size, placed in a frame, he contrived to throw the rays reflected from them to the same spot, at the distance of more than a hundred feet; and by this means he produced such a degree of heat, as led him to conclude that, by increasing their number, he could have set fire to inflammable substances at a greater distance. He likewise made a voyage to Syracuse, in company with his pupil, Schottus, in order to examine the place of the supposed transaction; and they were both of opinion that the galleys of Marcellus could not have been more than thirty paces from Archimedes.

Proclus is also said to have destroyed the navy of Vitalian, besieging Byzantium, by means of burning glasses.

Among the moderns, the most remarkable burning mirrors have been those of Magine; of Septala of Milan, which was nearly three feet and a half in diameter, and which burnt at the distance of fifteen or sixteen paces; of Vilette, and Tschirnhausen; the new complex one of M. Buffon; that of Trudaine; and that of Parker.

La Brocquiere, a traveller of the fifteenth century, says, that at Damascus they make mirrors of steel that magnify objects like burning glasses; and one of them, when exposed to the sun, reflected the heat so strongly as to set fire to a plank fifteen or sixteen feet distant.

M. Buffon constructed a machine consisting of a number of mirrors, by which he seems to have revived the secret of Archimedes, and to have vindicated the credit of history in this point. The experiment was first tried with twenty-four mirrors, which readily set on fire a combustible matter prepared of pitch and tow, laid on a deal board at a distance of sixty-six French feet. He then further pursued the attempt, and put together a kind of polyhedron, consisting of one hundred and sixty-eight pieces of plane looking-glass, each six inches square; and by means of this, some boards of beech wood were set on fire at the distance of a hundred and fifty feet, and a silver plate was melted at the distance of sixty feet. This machine in the next stage of its improvement, contained three hundred and sixty plane mirrors, each eight inches long and six broad, mounted on a frame eight feet high and seven feet broad. With twelve of these mirrors light combustible matters were kindled at a distance of twenty feet; with forty-five of them, at the same distance, a large tin vessel was melted; and with a hundred and seventeen a thin piece of silver. When the whole machine was employed, all the metals and metalic minerals were melted at the distance of twenty-five, and even of forty feet. Wood was kindled in a clear sky at a distance of two hundred and ten feet. M. Buffon afterward constructed a machine, which contained four hundred mirrors, each six inches square, with which he could melt lead and tin at the distance of one hundred and forty feet.

But the most powerful burning mirror ever constructed, was that of Mr. Parker, an eminent glass manufacturer in Fleet-street: it was made a few years ago by Mr. Penn, an ingenious artizan who lived at Islington. He erected an out building at the bottom of his garden, for the purpose of carrying on his operations; and at length succeeded in producing the most powerful burning lens that had ever been known. Its diameter was three feet; and the completing it, with its necessary apparatus, is said to have cost his employer, Mr. Parker, upwards of £700. Its powers were astonishing; the most hard and solid substances of the mineral world, as platina, iron, steel, flint stone, &c. were melted in a few seconds, on being exposed to its immense focus. A diamond, weighing ten grains, exposed to its lens for thirty minutes, was reduced to six grains, during which operation, it opened and foliated like the leaves of a flower, and emitted whitish fumes; when closed again, it bore a polish, and retained its form. Ten cut garnets, taken from a brace-

let, began to run into each other in a few seconds, and at last formed one globular garnet. The clay used by Mr. Wedgeworth to make his pyrometric test, run in a few seconds into a white enamel; and several specimens of lavas and other volcanic productions, on being exposed to the focus of this lens, yielded to its power.

A subscription was proposed in London, for raising the sum of seven hundred guineas, towards indemnifying the inventor for the expense he had incurred in its construction, and retaining this curious and useful machine in England; but from the failure of the subscription, and some other concurring circumstances, Mr. Parker was induced to dispose of it to Captain Mackintosh, who accompanied Lord Macartney in the empassy to China; and it was left, much to the regret of the philosophers in Europe, at Pekin, where it remaids in the hands of persons, who, most probably, know neither its value nor use. ANON.

NEW PUBLICATIONS.

Since our last, there has been issued from the prolific "Press" of the Messrs. Harpers, of this city, the 8th & 9th numbers of the "FAMILY LIBRARY," the first being the Natural History of Insects, and the latter, "Galts life of Lord Byron," both *useful* and *entertaining*. "Libraries" seem at present, to be all the rage in England, from whence we are in the habit—too much so, of receiving all our literature and science. In the first place, they have the Library of Useful Knowledge; then the Library of Entertaining Knowledge; then the Library of Classical Knowledge; the Juvenile Library, and how many more we know not. The plan, however, of the Messrs. Harpers, of publishing a series of books, both useful and entertaining, which shall, when completed, form a small, but select, "Family Library," so cheap too, as to come within the means of almost every family, we think a good one, and we doubt not but they will meet with ample encouragement, to progress with their undertaking.

We have on our table several books that have been lately issued from the press, which we recommend to the notice of our readers. The first is "A Dictionary of General Knowledge, or an Explanation of words and things connected with all the arts and sciences, illustrated with numerous wood-cuts, by George Crabbe." The present is the first American from the last English edition, published by White, Gallaher & White, and for sale by —— Sleight at his new book store in the basement story of Clinton Hall. It is a valuable work, and ought to be in the hands of every person, par-

ticularly of youths. The same remarks apply to "The Political Class Book," lately published by Richardson, Lord & Holbrook of Boston; and intended to instruct the higher classes in schoools, in the origin, nature, and use of Political Power, by William Sullivan, with an appendix upon studies for practical men; with notices of books suited to their use, by George B. Emerson. We know of no book of its size, more useful. It is a small volume, with very humble pretentions, but it will be found to contain a general outline and condensed summary of the Philosophy of Government in general, the principles of the Constitution of the United States, and of the eastern and middle States, together with the detail of the manner in which Congress, the Legislatures, Courts, &c. conduct business.

We have also upon our table "Burritt's Universal Multiplier," for computing interest, which from the slight examination we have been able to give it, we think highly useful to all business men, merchants and lawyers, particularly; as it enables a person to compute the interest of any sum, or every possible variety of sums, almost instantaneously. Attached to it are tables of the different gold and silver coins of the various countries, and showing their respective values in American currency, which is of itself extremely valuable.

Comstock's Natural Philosophy, for the use of Schools," is a work fitted for the purpose for which it was intended, and we should be glad to see it generally introduced into our common schools.

"Tales from American History" for the use of young persons and schools, by the author of American Popular Lessons, published by William Burgess, of this city, is also a valuable little book, and well calculated to disseminate among the youth of our country, a knowledge of its discovery and general history. Young people, as well as "children of larger growth," are extremely fond of tales and anecdotes; those selected from history not only interest the attention, but root themselves firmly and lastingly in the memory. Children, therefore, should have books of this kind placed in their hands, not only to amuse them, but to give them a taste for useful reading, and a knowledge of history. The plan is similar to the "Tales of a Grandfather" by Walter Scott, one of the most popular works of this popular writer.

Errata—Page 169, in the last number, second line from top, for "27 seconds," read "2 1-2 seconds,"